CLAIMS

1. Pressure sensor comprising an optical wave guide (10, 52, 76) and a first reflecting element (14, 56, 78) formed in a portion (12, 54, 74) of this optical wave guide, this portion being submitted to pressure (P), this sensor being characterised in that it also comprises means (20, 62, 72) of lateral support of the portion of optical wave guide, and in that this portion of optical wave guide is submitted to a compression prestress with a small value compared with the measurement range of the sensor.

2. Sensor according to claim 1, also comprising a housing (2, 48) and a membrane (4, 50) that is subjected to pressure and closes this housing, the sensor acting in compression,

in which the portion (12) of the optical wave guide is placed in the housing and comprises first and second ends that are fixed to the membrane and to the housing respectively, and the means of lateral support comprise means (20, 62) of preventing buckling of the portion of optical wave guide when the latter is compressed.

3. Sensor according to claim 2, in which the means (20) of preventing buckling of the portion of optical wave guide comprise a tube (22), which is placed in the housing, and surrounds this portion of optical wave guide and comprises a first end that is at a spacing from the membrane and a second end that is fixed to the housing, and rings (24) which are arranged one after the other in the tube between the housing and

the membrane, and are spaced from each other by elastic elements (26), the portion of optical wave guide passing through them, and this portion of optical wave guide being free to slide in these rings.

4. Sensor according to claim 3, in which the elastic elements are elastic toric spacers (26).

5. Sensor according to any one of claims 3 and 4, in which the elastic elements (26) are made from an elastic material with a low coefficient of friction.

6. Sensor according to claim 5, in which this elastic material is cellular polytetrafluorethylene.

7. Sensor according to claim 2, in which the means of preventing buckling of the portion of optical wave guide comprise a single ring (24) that is fixed and integral with the housing and that guides the portion (12) of optical wave guide over the entire length of the sensor.

8. Sensor according to claim 2, in which the means (62) of preventing buckling of the portion of optical wave guide comprise rigid washers (64) arranged one after the other in the housing, along the portion of optical wave guide, this portion of optical wave guide passing through them, together with elastic elements (66) that are arranged one after the other in the housing, between this housing and the membrane, alternate with the rigid washers, and are integral with these rigid washers.

9. Sensor according to claim 8, in which the elastic elements (66) form a single block of

elastic material that traps the portion of optical wave guide.

10. Sensor according to claim 1, in which the first and second ends of the portion of optical wave guide are fixed and the means of lateral support include an elastic element (72) that traps the portion of optical wave guide and extends from the first end to the second end thereof, the pressure being applied to the periphery of this element.

11. Sensor according to any one of claims 1 to 10, also comprising a second reflecting element (46, 60, 86) that is different from the first reflecting element (14, 56, 78) and that is designed for measuring temperature, this second reflecting element being formed in a portion of the optical wave guide (10, 52, 76) that is not subjected to pressure.